

**IN THE DRAWINGS**

Please substitute the attached drawing sheets showing FIGS. 1-3 for the drawing sheets originally filed with the application. Applicant notes that the original drawings have artifacts in the form of two lines running along the length of the page that appeared due to the quality of the version originally filed. The submitted replacement sheets are formal drawings.

**REMARKS**

Please reconsider the application in view of the above amendments and the following remarks. Applicant thanks the Examiner for carefully considering this application.

**Deposition of Claims**

Claims 1-27 are pending in this application. Claims 1 and 27 are independent claims. Claims 2-26 depend, directly or indirectly, from claim 1.

**Claims Amendments**

Claims 1-27 have been amended in this reply to clarify the claim language and correct minor informalities. These amendments have not been made in view of prior art. Also, claim 1 has been amended to recite that the light source and the light detector are immersed in the liquid. All the amendments are fully supported by the original specification. No new matter has been added.

**Claim Objections**

Claims 1 and 27 were objected for insufficient antecedent basis for reciting the limitation "the successive measurements." The claims have been amended in view of this objection. Accordingly, withdrawal of this objection is respectfully requested.

Claim 2 was objected for insufficient antecedent basis for reciting the limitation "the time variation." The claim has been amended in view of this objection. Accordingly, withdrawal of this objection is respectfully requested.

Claims 9-26 were objected under 37 C.F.R. 1.75(c) for being in improper form. Claims 9-26 have been amended in view of this objection. Accordingly, withdrawal of this objection is respectfully requested.

**Rejection(s) under 35 U.S.C. §102**

Claims 1, 2 and 27 stand rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 4,902,137 ("Krieg et al."). Claim 1 has been amended by way of this reply. To the extent that this rejection may still apply to the amended claims, the rejection is respectfully traversed.

Claim 1, as amended, recites a process for detection of gas bubbles inside a liquid where the light source and the light detector are *immersed in the liquid*. As shown, by way of example in Figs. 1-3, the light emitter 1 and the light detector 2 are in direct contact with the liquid in which bubbles are to be detected.

Krieg et al. show the light source and the light detector outside the fluid in which foreign bodies are to be detected. Fig. 1 shows a light source 2 and a television camera 21 placed diagonally opposite the light source, and the liquid placed in the center inside an infusion bottle 7. Thus, the light emitter and the light detector make no physical contact with the liquid under test. Therefore, Krieg et al. fail to show or disclose all the elements of the process recited in claim 1. Claim 2 is dependent on Claim 1, and is patentable for at least the same reasons. Accordingly, withdrawal of the rejection of claims and is respectfully requested.

Claim 27, as amended, recites a device for detection of gas bubbles inside a liquid in which the light detection means and the light detection means are in direct physical contact

with the liquid. As discussed above, Krieg et al. fails to show that the light source 2 and the television camera 21 are in direct contact with the liquid inside the infusion bottle 7. Thus, Krieg et al. fails to show or disclose all the elements recited in claim 27. Accordingly, withdrawal of the rejection of claim 27 is respectfully requested.

### **Rejection(s) under 35 U.S.C. § 103**

Claims 3 and 4 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Krieg et al. as applied to claim 2, and in view of Zweighaft (4,885,676). To the extent that this rejection may still apply to the amended claims, the rejection is respectfully traversed.

As explained above, Krieg et al. fails to teach or suggest the use of the light source 2 and the television camera 21 in direct contact with the liquid 8. The claimed invention describes a robust and economical method to detect bubbles inside a moving liquid, for example in a water circuit for cooling an internal combustion engine of a motor vehicle (please refer to page 1, line 3 of specification). The applicant respectfully points out that it would not be obvious to employ a lens system 3, the reflection mirrors 3', the mask 9, the analyzer 17 and the television camera 21 for detecting bubbles in a environment where space is limited, as in the aforementioned example. Thus, Krieg et al. fails to suggest or teach that which is required by the claim 1.

As discussed above, claim 1, from which claims 3 and 4 directly or indirectly depend, is patentable over Krieg et al. Zweighaft does not teach or suggest all of the limitations of claim 1 or provide that which Krieg et al. lacks. Specifically, Zweighaft neither shows nor suggests employing the light emitter and the light intensity detector to be in direct contact with

the liquid under test. In view of the above, Krieg et al. and Zweighaft, whether considered separately or in combination, fail to show or suggest the present invention as recited in independent claim 1. Thus independent claim 1 is patentable over Krieg et al. and Zweighaft. Dependent claims 3 and 4 are allowable for at least the same reasons. Accordingly, withdrawal of this rejection is respectfully requested.

Claims 5 and 6 stand rejected under U.S.C. § 103(a) as being unpatentable over Krieg et al. in view of Zweighaft as applied to claim 3 and 4, and in further view of U.S. Patent No. 4,749,871 ("Galvin"). As discussed above, claim 1 is patentable over Krieg et al. and Zweighaft. Galvin also does not show or suggest the immersing of the light emitter and the light intensity detector into the liquid under test. Thus, Galvin fails to teach or suggest all of the limitations of claim 1 and fails to provide that which Krieg et al. and Zweighaft lack. Thus, claim 1 is patentable over Krieg et al., Zweighaft, Galvin, whether considered separately or in combination. Dependent claims 5 and 6 are patentable for at least the same reasons.

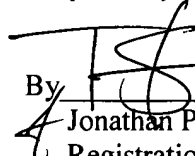
Claims 7 and 8 are rejected under 35 U.S.C § 103(a) as being unpatentable over Krieg et al. as applied to claim 1, and in view of U.S. Patent No. 5,508,521 ("Kraft"). As discussed above, claim 1 is patentable over Krieg et al.. Kraft does not show or suggest the limitation recited in amended claim 1, which recites that the light emitter and the light detector are immersed into the liquid. Thus, Kraft fails to teach or suggest all of the limitations of claim 1 and fails to provide that which Krieg et al. lack. Therefore, Claim 1 is patentable over Krieg et al. and Kraft, whether considered separately or in combination. Dependent claims 7 and 8 are patentable for at least the same reasons. Accordingly, withdrawal of this rejection is respectfully requested.

**Conclusion**

Applicant believes this reply is fully responsive to all outstanding issues and places this application in condition for allowance. If this belief is incorrect, or other issues arise, the Examiner is encouraged to contact the undersigned or his associates at the telephone number listed below. Please apply any charges not covered, or any credits, to Deposit Account 50-0591 (Reference Number 17198/004001).

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Respectfully submitted,

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Attachment: Replacement Drawings (3 Figures, 2 pages)

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